

# Suicidal ideation and reported suicide attempts in Greece during the economic crisis

MARINA ECONOMOU<sup>1,2</sup>, MICHAEL MADIANOS<sup>3</sup>, LILY EVANGELIA PEPOU<sup>1</sup>, CHRISTOS THELERITIS<sup>1</sup>, ATHANASIOS PATELAKIS<sup>1</sup>, COSTAS STEFANIS<sup>1</sup>

<sup>1</sup>University Mental Health Research Institute (UMHRI); <sup>2</sup>First Department of Psychiatry, Medical School, University of Athens, Eginition Hospital; <sup>3</sup>Department of Mental Health and Behavioural Sciences, School of Health Sciences, University of Athens, Athens, Greece

*The financial crisis in Greece is largely impinging on the health and mental health of the population, raising concerns about a potential rise in suicide rates. The aim of this study was to explore changes in suicidal ideation and reported suicide attempts between 2009 and 2011 in a representative sample of the population and in several population subgroups. The socio-economic predictors of suicidal ideation and suicide attempts in 2011 were also investigated. Two nationwide cross-sectional telephone surveys were conducted in 2009 and 2011 using the same methodology. A random and representative sample of 2192 and 2256 people, respectively, took part in the surveys. Between 2009 and 2011, there was a substantial increase in the prevalence of suicidal ideation and reported suicide attempts. People suffering from depression, men, married individuals, people experiencing financial strain, people with low interpersonal trust, and individuals with a history of suicide attempts were particularly vulnerable.*

**Key words:** Financial crisis, suicidal ideation, suicide attempts, unemployment, Greece

*(World Psychiatry 2013;12:53–59)*

Suicide is a huge public health issue worldwide. Each year roughly one million people die by suicide around the world, making it one of the leading causes of death internationally (1,2). Congruent with this, the World Health Organization has encouraged collection of data on the prevalence and risk factors for suicide to inform the design of public health strategies and health care policies (3). Previous research has indicated that suicidal thoughts and attempts, hereafter referred to as “suicidality”, should be conceptualized as predictors of more serious suicidal acts (4,5).

Suicide/suicidality has been found to bear a strong association with both psychiatric and socio-economic factors (6). The presence of a psychiatric disorder is among the most consistently identified risk factors for suicide/suicidality (7,8), with psychological autopsy studies revealing that more than 90% of suicide victims suffered from mental illness at the time of their death (9), most commonly from mood disorders (10). Conversely, growing evidence has documented a link between suicide/suicidality and socio-economic factors, such as unemployment, income, and family status (6,11,12). In line with all this, during periods of economic recession, with its ramifications including financial hardship, job loss, and elevated prevalence of depression (13–16), suicide becomes a nagging concern (17).

In 2008, as a consequence of the global financial crisis and the local unrelenting spending, the Greek population started facing a serious socio-economic turmoil. In 2010, a memorandum of economic and financial policies was signed in order to avert Greece’s default. In 2011, the financial and socio-political climate became even worse: the unemployment rate reached 16.6% in May, the gross domestic product (GDP) further declined by 6.1%, and the debt grew from 105.4% of GDP in 2007 to 160.9% (18,19). The health and mental health

implications of the economic crisis in Greece have attracted increasing attention (13,20,21), with a strong emphasis on a potential rise in suicides/suicidality (21–24). This is of primary importance, given the country’s low suicide rates recorded in previous studies (25–27).

In an endeavor to gauge the impact of the financial crisis on the mental health of the Greek population, two cross-sectional nationwide studies were conducted in 2009 and 2011 (before and after the introduction of the memorandum of economic and financial policies in the daily life of the population). The present study concentrates on suicidality findings. It reports on the prevalence of suicidal ideation and suicidal attempts in a representative sample of the Greek population and in various population subgroups between 2009 and 2011 and on predictors of suicidal ideation and suicidal attempts in 2011.

## METHODS

The sampling frame of the study was the national phone-number databank, providing coverage of the vast majority of households in the country. A random sample of telephone numbers belonging to individuals were selected from the directory. Within each household, the person who had his or her birthday last was selected for an interview.

Telephonic interviews were conducted with adults aged between 18 and 69 years during the same time period (February to April) in 2009 and 2011. In 2009, of the 2667 calls made, there were 2192 successfully completed interviews (response rate=82.2%). One hundred eighty four people (6.9%) hung up immediately and 290 (10.9%) refused to be interviewed or did not complete the interview. In 2011, of the 2820 calls made, there were 2256

successfully completed interviews (response rate=80.5%). Two hundred and three people (7.2%) hung up immediately and 347 (12.3%) refused to be interviewed or did not complete the interview. No statistically significant differences were found between participants who could be interviewed and those who could not in terms of gender, age, and place of residence.

All interviews were carried out by well-trained graduates in social sciences, including psychology. The training included lectures, role playing, and pilot phone interviews which were taped and reexamined, for a total of 60 h.

The method of computer-assisted telephone interviewing was used (28), as it enables automatic control of questionnaire branching, on-line verification checks, and automatic scheduling of future call backs (e.g., if the call is not answered or the interview is not completed).

Information about the occurrence of a major depressive episode, suicidal ideation, and suicide attempts during the past month was collected using the relevant module of the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) (29), which has been standardized in the Greek population and extensively used in clinical and epidemiologic studies (e.g., 30,31).

To confirm the reliability of the diagnosis, a random sample of the calls (10%) was rated by ten interviewers. The Fleiss' kappa was found to be 0.89 in 2009 and 0.90 in 2011. Furthermore, a random sample of participants (10%) agreed to be reinterviewed by a psychiatrist. The rate of diagnostic agreement was 87% in 2009 and 89% in 2011.

To assess participants' degree of financial strain, the Index of Personal Economic Distress (IPEd) was used (13). This self-reported measure encompasses eight questions describing participants' difficulty in fulfilling daily financial demands of a household during the last six months. Responses are made on a three-point scale (never, 1; sometimes, 2; often, 3), while the composite score of the scale can range from 8 (no economic problems) to 24 (serious economic problems). A previous exploration of the psychometric properties of the scale identified 15 as the cut-off point producing the best results in terms of sensitivity and specificity (13). Congruent with this, participants scoring above this cut-off point were regarded as being in high financial distress. The scale displayed good internal consistency (Cronbach  $\alpha=0.93$ ).

Interpersonal trust was assessed by the relevant questions from the European Social Survey (32). Questions were rated on a scale from 0 to 10, with values close to 0 indicating low interpersonal trust. As the internal consistency of the scale was good (Cronbach  $\alpha=0.77$ ), a composite scale score was computed.

The socio-demographic characteristics of the respondents (gender, age, family status, place of residence, education, employment status) and their previous contacts with mental health professionals, use of psychiatric medication, and admissions to an inpatient service were recorded.

**Table 1** Socio-demographic characteristics of the 2009 and 2011 samples compared to the 2001 population census

	2009		2011		2001
	n	%	n	%	%
<b>Gender</b>					
Male	1080	49.3	1090	48.3	46.8
Female	1112	50.7	1166	51.7	54.2
<b>Age groups</b>					
<24	210	9.6	223	9.9	9.2
25-34	411	18.7	426	18.9	19.8
35-44	325	14.8	367	16.3	16.2
45-54	452	20.6	425	18.8	19.4
55-64	384	17.5	368	16.3	16.0
>65	409	18.6	447	19.8	18.4
<b>Marital status</b>					
Single	486	22.2	455	20.2	21.0
Married	1487	67.8	1585	70.3	70.0
Widowed	123	5.9	138	6.1	7.1
Divorced	96	4.3	78	3.5	3.0
<b>Education (years)</b>					
<11	1077	49.1	1351	59.9	61.0
12	813	37.1	654	29.0	28.0
>13	302	13.8	251	11.1	11.0
<b>Place of residence</b>					
Athens greater area	808	36.9	847	37.5	39.3
Thessalonica and central Macedonia	275	12.5	388	17.2	15.0
Rest of country	1109	50.6	1021	45.3	45.7
<b>Occupation</b>					
Employed	1184	84.4	1214	85.5	94.0
Unemployed	218	15.6	206	14.5	6.0

The study received approval from the University Mental Health Research Institute Ethics Committee and was performed in accordance with the ethical standards delineated in the 1964 Declaration of Helsinki. Informed consent was obtained from all participants.

To explore differences between categorical variables,  $\chi^2$  test with Yates' correction was used. To identify predictors of suicidal ideation and recent suicide attempt, two logistic regression models were computed, with presence/absence of suicidal ideation/recent suicidal attempt as the dependent variable. All analyses were performed by SPSS v.17.

## RESULTS

In Table 1, the socio-demographic characteristics of the 2009 and 2011 samples are presented, along with those of the Greek population according to the 2001

**Table 2** Prevalence (%) of suicidal ideation in population subgroups in 2009 and 2011

	2009 (n=2192)	2011 (n=2256)	$\chi^2$ (df=1)	p
Gender				
Male	4.4	7.1	6.41	0.011
Female	5.9	6.3	0.05	0.817
Age				
<24	13.9	4.9	15.83	<0.001
25–34	7.0	9.9	1.19	0.275
35–44	3.4	6.6	2.69	0.100
45–54	7.4	7.8	0.00	0.923
55–64	1.9	7.2	14.41	<0.001
>65	3.2	5.0	1.08	0.299
Marital status				
Unmarried	11.6	5.6	17.24	<0.001
Married	2.3	7.3	38.08	<0.001
Education				
<11	4.3	6.8	3.39	0.065
12	6.3	6.8	0.01	0.921
>13	6.0	6.6	0.17	0.680
Place of residence				
Rest of country	4.9	5.8	0.95	0.328
Athens	5.7	8.0	3.16	0.075
Employment status				
Unemployed	4.0	10.2	3.31	0.069
Economically active	5.2	7.2	3.05	0.080
Not economically active	5.3	4.9	0.06	0.796
Sought professional help				
No	4.5	4.7	0.05	0.810
Yes	8.3	17.3	13.36	<0.001
Used psychotropic medications				
No	5.2	5.9	0.86	0.353
Yes	4.5	22.7	11.10	<0.001
Major depression diagnosis				
No	2.5	2.3	0.15	0.69
Yes	54.9	56.0	0.00	0.94

census. The composition of the samples was congruent with the population census.

The proportion of respondents who reported suicidal ideation was 6.7% in 2011 versus 5.2% in 2009 ( $\chi^2=3.92$ ,  $df=1$ ,  $p=0.04$ ). As shown in Table 2, a significant increase in the prevalence of suicidal ideation was observed in men (7.1% vs. 4.4%,  $\chi^2=6.41$ ,  $df=1$ ,  $p=0.011$ ), but not in women (6.3% vs. 5.9%,  $\chi^2=0.05$ ,  $df=1$ ,  $p=0.817$ ). The prevalence of suicidal ideation also increased among respondents aged 55–64 years (7.2% vs. 1.9%,  $\chi^2=14.41$ ,  $df=1$ ,  $p<0.001$ ), while it decreased in those younger than 24 years (4.9% vs. 13.9%,  $\chi^2=$

15.83,  $df=1$ ,  $p<0.001$ ). An increase was also observed among married individuals (7.3% vs. 2.3%,  $\chi^2=38.08$ ,  $df=1$ ,  $p<0.001$ ), while the prevalence decreased in unmarried respondents (5.6% vs. 11.6%,  $\chi^2=17.24$ ,  $p<0.001$ ). Suicidal ideation was also increased between 2009 and 2011 among respondents who used psychotropic medications (22.7% vs. 4.5%,  $\chi^2=11.10$ ,  $df=1$ ,  $p<0.001$ ) and those who had sought help from a mental health professional (17.3% vs. 8.3%,  $\chi^2=13.36$ ,  $df=1$ ,  $p<0.001$ ).

The proportion of respondents who reported a recent suicide attempt was 1.5% in 2011 versus 1.1% in 2009 ( $\chi^2=1.16$ ,  $df=1$ ,  $p=0.28$ ) (23). As shown in Table 3, a

**Table 3** Prevalence (%) of reported suicide attempts in population subgroups in 2009 and 2011

	2009 (n=2192)	2011 (n=2256)	$\chi^2$ (df=1)	p
Gender				
Male	0.4	2.0	11.12	<0.001
Female	1.8	1.0	1.93	0.165
Age				
<24	0.0	1.3	1.53	0.215
25–34	0.0	1.7	6.73	0.009
35–44	0.0	2.3	4.56	0.033
45–54	3.2	0.7	5.33	0.021
55–64	1.2	2.8	1.93	0.164
>65	1.4	0.6	0.55	0.457
Marital status				
Unmarried	2.8	1.4	3.14	0.076
Married	0.3	1.6	10.81	0.001
Education				
<11	2.1	2.9	0.39	0.530
12	0.3	1.4	1.25	0.262
>13	0.1	1.2	5.96	0.015
Place of residence				
Rest of country	1.3	1.8	0.74	0.388
Athens	0.9	1.1	0.02	0.874
Employment status				
Unemployed	0.0	4.4	4.12	0.042
Economically active	0.4	1.1	1.95	0.162
Not economically active	1.9	1.6	0.03	0.861
Sought professional help				
No	0.7	1.3	2.49	0.115
Yes	2.7	2.6	0.00	1.000
Used psychotropic medications				
No	1.1	1.3	0.36	0.546
Yes	1.1	5.2	1.26	0.260
Major depression diagnosis				
No	0.8	0.5	0.97	0.324
Yes	6.6	13.0	2.56	0.109

**Table 4** Logistic regression results with suicidal ideation (presence/absence) as dependent variable

	OR	95% CI	p
Major depression diagnosis			
No <sup>a</sup>			
Yes	47.72	22.18–62.66	<0.001
Gender			
Female <sup>a</sup>			
Male	1.96	0.95–4.13	NS
Age (years)	0.96	0.72–1.29	NS
Education (years)	1.11	0.58–2.13	NS
Place of residence			
Athens <sup>a</sup>			
Rest of country	1.57	0.70–3.54	NS
Marital status			
Not married <sup>a</sup>			
Married	1.51	0.59–3.82	NS
Employment status			
Unemployed <sup>a</sup>			
Economically active	0.92	0.26–3.23	NS
Not economically active	0.71	0.15–3.25	NS
IPED (score)	1.07	1.07–1.40	<0.05
Previous suicide attempt			
No <sup>a</sup>			
Yes	6.89	1.66–8.60	<0.01
Interpersonal trust scale (score)	0.93	0.87–0.98	<0.001

<sup>a</sup>Reference category

IPED – Index of Personal Economic Distress

significant increase in the prevalence of a recent suicide attempt was observed in men (2.0% vs. 0.4%,  $\chi^2=11.12$ ,  $df=1$ ,  $p<0.001$ ), but not in women (1.0% vs. 1.8%,  $\chi^2=1.93$ ;  $df=1$ ,  $p=0.165$ ). The prevalence of a recent suicide attempt also increased among people aged 25–34 years (1.7% vs. 0.0%,  $\chi^2=6.73$ ,  $df=1$ ,  $p=0.009$ ) and 35–44 years (2.3% vs. 0.0%,  $\chi^2=4.56$ ,  $df=1$ ,  $p=0.033$ ), whereas it decreased in respondents aged 45–54 years (0.7% vs. 3.2%,  $\chi^2=5.33$ ,  $df=1$ ,  $p=0.021$ ). An increase was also observed among married people (1.6% vs. 0.3%,  $\chi^2=10.81$ ,  $df=1$ ,  $p=0.001$ ) and in those with the highest educational attainment (1.2% vs. 0.1%,  $\chi^2=5.96$ ,  $df=1$ ,  $p=0.015$ ). No unemployed respondent reported a recent suicide attempt in 2009, while the proportion was 4.4% in 2011 ( $\chi^2=4.12$ ,  $df=1$ ,  $p=0.042$ ).

As shown in Table 4, the significant predictors of suicidal ideation in 2011 were the presence of major depression during the previous month, financial hardship experienced, a previous history of suicide attempt, and a low interpersonal trust. People who fulfilled DSM-IV criteria for major depression were 48 times more likely to present suicidal ideation than people

without that diagnosis (OR=47.72, 95% CI=22.18–62.66,  $p<0.001$ ). Respondents with a history of suicide attempt were seven times more likely to report suicidal ideation than people without such a history (OR=6.89, 95% CI=1.66–8.60,  $p<0.01$ ).

As reported in Table 5, the significant predictors of a recent suicide attempt in 2011 were the presence of major depression during the previous month, financial hardship, a previous history of suicide attempt, being male, and being married. People who fulfilled DSM-IV criteria for major depression were 97 times more likely to report a suicide attempt during the previous month than people without that diagnosis (OR=97.39, 95% CI=71.06–134.45,  $p<0.01$ ). Men were 12 times more likely to report a recent suicide attempt than women (OR=12.26, 95% CI=5.10–16.78,  $p<0.05$ ), and married people were 53 times more likely to report it than unmarried ones (OR=53.29, 95% CI=33.29–64.40,  $p<0.05$ ). People with a previous history of suicide attempt were 14 times more likely to report a recent suicide attempt than those without such a history (OR=14.41, 95% CI=1.79–15.95,  $p<0.01$ ).

**Table 5** Logistic regression results with reported suicide attempt (presence/absence) as dependent variable

	OR	95% CI	p
Major depression diagnosis			
No <sup>a</sup>			
Yes	97.39	71.06–134.45	<0.01
Gender			
Female <sup>a</sup>			
Male	12.26	5.10–16.78	<0.05
Age (years)	0.43	0.16–1.16	NS
Education (years)	2.88	0.53–5.69	NS
Place of residence			
Athens <sup>a</sup>			
Rest of country	1.89	0.21–6.67	NS
Marital status			
Unmarried <sup>a</sup>			
Married	53.29	33.29–64.40	<0.05
Employment status			
Unemployed <sup>a</sup>			
Economically active	0.40	0.02–6.74	NS
Not economically active	14.90	0.35–24.76	NS
IPED (score)	1.23	1.02–1.49	<0.05
Previous suicide attempt			
No <sup>a</sup>			
Yes	14.41	1.79–15.95	<0.01
Interpersonal trust scale (score)	1.03	0.87–1.22	NS

<sup>a</sup>Reference category

IPED – Index of Personal Economic Distress

## DISCUSSION

This study provides evidence of a substantial increase in the prevalence of suicidal ideation and reported suicide attempts between 2009 and 2011 in a representative sample from the Greek population. People suffering from depression, men, married individuals, people experiencing financial strain, people with low interpersonal trust, and those with a previous history of suicide attempts were particularly vulnerable.

Previous research in the country has displayed important fluctuations in reported suicide ideation and suicide attempt rates across the years as well as a strong link between these rates and socio-economic factors (13,26). Specifically, in an epidemiologic study conducted in 1978, the 1-month prevalence of suicidal ideation was found to be 4.8%, whereas in 1984 it reached 10.9% (26). This substantial rise was attributed to the economic recession striking the country at the time, which peaked in 1984 and necessitated the application of economic measures during the period 1985–1986 (33). A similar trend was recorded for reported suicide attempts during the month prior to the interview, with a rate of 0.7% in 1978 and 2.6% in 1984. In the year 2008, prior to the outset of the economic crisis in Greece, the 1-month prevalence of suicidal ideation was 2.4% and that of suicide attempts was 0.6 (13). Both rates are substantially lower than those in 2009 and 2011.

In a similar vein, Zacharakis et al (25) explored suicide rates in Greece in the period 1980–1995 and found they were among the lowest in the world, possibly due to an array of social and cultural factors: the strong family ties, the support and help offered by social networks, and religious practices. Suicide rates remained low until 2009. According to the official data from the police registry, there were 507 completed suicides and serious suicide attempts in 2009, 622 in 2010, and 598 in 2011 (34).

These findings run in parallel with the gradual increase in the prevalence of major depression in Greece during the past few years (16), confirming that the economic crisis in Greece has impinged on the mental health of the population, similarly to what observed in other countries (14,35).

Our findings about the population subgroups most vulnerable to suicidality can be explained by the socio-economic variables that play a prominent role during recession, in particular unemployment, job insecurity, and loss of income (36–38). For example, people with high educational attainment might face difficulty in finding a job or might be experiencing a mismatch between their educational level and their salary. Men and married people are the breadwinners in the Greek family and may feel incapable of providing their families with the essentials due to unemployment or job insecurity. The age groups displaying the highest increase in suicidality in our study were those experiencing the largest

changes in unemployment rates in recent years (39). Furthermore, people aged 55–64 years had to deal with early compulsory retirement in 2011. Research has shown that people who approach retirement at the time of an economic crisis are particularly susceptible to stress and uncertainty due to disruptions to their financial preparations (40) and reliance on fixed income resources (e.g., pensions), which are subject to market fluctuations (41).

The significant increase in the prevalence of suicidality among those who have sought professional help and those who take psychotropic medications is congruent with the increase in the use of mental health services and in the incidence of help-seeking for psychological problems during times of economic adversity (42).

In our study, the only significant protective factor with respect to suicidal ideation was interpersonal trust. This has been considered for long as a measure of social capital (43), which in turn has been linked to lower mortality rates (44), including deaths from suicide (45), lending in this way support to Durkheim's seminal work on social integration and suicide (46). Social capital in general and interpersonal trust in particular can protect citizens from developing suicidal ideation, even during periods of economic crisis. This supports recommendations to enhance social capital to mitigate the health and mental health effects of the recession (17,47).

Our data suggest that being male increases substantially the odds of attempting suicide. This can be explained by a variety of factors, such as job insecurity, loss of income, men's social roles being closely bound to employment conditions, and low availability of social support. For example, Moller-Leimkuhler (48) associated male vulnerability for suicide with the observation that men tend to be less socially integrated, have less social support, and are emotionally more isolated.

The increased risk for suicide attempts among married individuals can be interpreted in the light of the family stress model (49,50), which postulates that couples experiencing financial strain become angry, sad, and pessimistic about the future. The emotional distress leads the spouses to interact in a nonsupportive and irritable manner, resulting in marital conflict. Marital conflict in turn is associated with depression (49,50) and suicide (51). This model has received support in studies conducted in the United States (52), Czech Republic (53), Finland (54), Romania (55), and Korea (56).

Clinicians should be aware of the above risk factors. They should explore in depth whether men, people with major depression, those experiencing financial strain, individuals with previous suicide attempts, married individuals, and people with low levels of interpersonal trust display suicidal ideation or have attempted suicide. Clinicians should not ignore that about 90% of unplanned and 60% of planned first suicide attempts occur within 1 year of the onset of suicidal ideation (8). Within this context, early detection of mental health problems and depression in

particular is of primary importance (57). Programs specifically designed to train primary care physicians in the recognition and treatment of depression have reported reductions in suicide rates (58). The development of social protection programs such as labor force expansion programs, social support systems, and access to health care and health insurance might mitigate the negative mental health effects of economic crisis and unemployment (17,47).

The present study was not without its shortcomings. Due to the cross-sectional nature of the design, causal inferences cannot be drawn. In addition, reported suicidal ideation and suicide attempts can be susceptible to recall bias or to reluctance on the part of respondents to disclose such a sensitive information. Although the anonymity of telephone interviewing has been shown to facilitate the disclosure of this type of information (59,60), it cannot be excluded that the prevalence rates found in this study represent an underestimation of true rates.

In conclusion, our findings confirm that the influence of the recession on mental health in the Greek population is being pervasive and that systematic efforts should be undertaken to mitigate these effects. A strategic plan for treating major depression and preventing suicide should be implemented, if Greece is to retain its low position in suicide rates worldwide.

## References

- World Health Organization. Prevention of suicide: guidelines for the formulation and implementation of national strategies. Geneva: World Health Organization, 1996.
- US Department of Health and Human Services. With understanding and improving health and objectives for improving health. Washington: US Department of Health and Human Services, 2000.
- World Health Organization. Suicide prevention (SUPRE). Geneva: World Health Organization, 2007.
- Brezo J, Paris J, Tremblay R et al. Personality traits as correlates of suicide attempts and suicidal ideation in young adults. *Psychol Med* 2006;36:180-206.
- Suominen K, Isometsa E, Suokas J et al. Completed suicide after a suicide attempt: a 37-year follow-up study. *Am J Psychiatry* 2004;161:562-3.
- Nock MK, Borges G, Bromet EJ et al. Suicide and suicidal behavior. *Epidemiol Rev* 2008;30:133-54.
- Nock MK, Borges G, Bromet EJ et al. Cross-national prevalence and risk factors for suicidal ideation, plans, and attempts in the WHO World Mental Health Surveys. *Br J Psychiatry* 2008;192:98-105.
- Kessler RC, Borges G, Walters EE. Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Arch Gen Psychiatry* 1999;56:617-26.
- Cavanagh JT, Carson AJ, Sharpe M et al. Psychological autopsy studies of suicide: a systematic review. *Psychol Med* 2003;33:395-405.
- Bostwick JM, Pankratz VS. Affective disorders and suicide risk: a reexamination. *Am J Psychiatry* 2000;157:1925-32.
- Gunnell D, Lopatatzidis A, Dorling D et al. Suicide and unemployment in young people. Analysis of trends in England and Wales, 1921-1995. *Br J Psychiatry* 1999;175:263-70.
- McMillan KA, Enns MW, Asmundson GJ et al. The association between income and distress, mental disorders, and suicidal ideation and attempts: findings from the Collaborative Psychiatric Epidemiology Surveys. *J Clin Psychiatry* 2010;71:1168-75.
- Madianos M, Economou M, Alexiou T et al. Depression and economic hardship across Greece in 2008 and 2009: two cross-sectional surveys nationwide. *Soc Psychiatry Psychiatr Epidemiol* 2011;46:943-52.
- Lee S, Guo WJ, Tsang A et al. Evidence for the 2008 economic crisis exacerbating depression in Hong Kong. *J Affect Disord* 2010;126:125-33.
- Wang JL, Smailes E, Sareen J et al. The prevalence of mental disorders in the working population over the period of global economic crisis. *Can J Psychiatry* 2010;55:598-605.
- Economou M, Madianos M, Peppou L et al. Major depression in the era of economic crisis: a replication of a cross-sectional study across Greece. *J Affect Disord* (in press).
- World Health Organization. Impact of economic crises on mental health. Geneva: World Health Organization, 2011.
- Eurostat. Euro area and EU27 government deficit at 6.0% and 6.4% of GDP respectively. Luxembourg: Eurostat, 2011.
- Hellenic Statistical Authority. Unemployment rate at 16.6% in May 2011. Piraeus: Hellenic Statistical Authority, 2011.
- Kentikelenis A, Papanicolas I. Economic crisis, austerity and the Greek public health system. *Eur J Public Health* 2012;22:4-5.
- Kentikelenis A, Karanikolos M, Papanicolas I et al. Health effects of financial crisis: omens of a Greek tragedy. *Lancet* 2011;378:1457-8.
- Stuckler D, Basu S, Suhrcke M et al. Effects of the 2008 recession on health: a first look at European data. *Lancet* 2011;378:124-5.
- Economou M, Madianos M, Theleritis C et al. Increased suicidality amid economic crisis in Greece. *Lancet* 2011;378:1459.
- Economou M, Madianos M, Peppou LE et al. Suicidality and the economic crisis in Greece. *Lancet* 2012;380:337.
- Zacharakis CA, Madianos M, Papadimitriou GN et al. Suicide in Greece 1980-1995: patterns and social factors. *Soc Psychiatry Psychiatr Epidemiol* 1998;33:471-6.
- Madianos M, Madianou-Gefou D, Stefanis CN. Changes in suicidal behavior among nation-wide general population samples across Greece. *Eur Arch Psychiatry Clin Neurosci* 1993;243:171-8.
- World Health Organization. Suicide rates in Greece. [www.who.int](http://www.who.int).
- Ketola E, Klockars M. Computer-assisted telephone interview (CATI) in primary care. *Fam Pract* 1999;16:179-83.
- First MB, Spitzer R, Gibbon M et al. Structured Clinical Interview for DSM-IV Axis I Disorders, patient edition. New York: Biometrics Research, New York State Psychiatric Institute, 1996.
- Madianos M, Papaghelis M, Philippakis A. The reliability of SCID-I in Greece in clinical and general population. *Psychiatriki* 1997;8:101-8.
- Madianos M, Economou M, Stefanis C. Long-term outcome of psychiatric disorders in the community: a 13 year follow up study in a nonclinical population. *Compr Psychiatry* 1998;39:47-56.
- European Social Survey. Questionnaire. [www.europeansocialsurvey.org](http://www.europeansocialsurvey.org).
- Madianos M, Stefanis CN. Changes in the prevalence of symptoms of depression and depression across Greece. *Soc Psychiatry Psychiatr Epidemiol* 1992;27:211-9.
- Ministry of Public Order & Citizen Protection. Table on suicides (completed and attempted) from 2009 until 10-12-2011. Athens: Police Headquarters, 2011.
- Hong J, Knapp M, McGuire A. Income-related inequalities in the prevalence of depression and suicidal behavior: a 10-year trend following economic crisis. *World Psychiatry* 2011;10:40-4.
- Gavrilova NS, Semyonova VG, Evdokushkina GN et al. The response of violent mortality to economic crisis in Russia. *Popul Res Policy Rev* 2000;19:397-419.

37. Gunnell D, Harbord R, Singleton N et al. Factors influencing the development and amelioration of suicidal thoughts in the general population. Cohort study. *Br J Psychiatry* 2004;185:385-93.
38. Chang SS, Gunnell D, Sterne JAC et al. Was the economic crisis 1997-1998 responsible for rising suicide rates in East/Southeast Asia? A time-trend analysis for Japan, Hong Kong, South Korea, Taiwan, Singapore and Thailand. *Soc Sci Med* 2009;68:1322-31.
39. Hellenic Statistical Authority. Research on Labour Force: May 2012. Piraeus: Hellenic Statistical Authority, 2012.
40. Kelly S. Don't stop thinking about tomorrow: the changing face of retirement – the past, the present, the future. Sydney: AMP. NATSEM, 2009.
41. Sargent-Cox K, Butterworth P, Anstey KJ. The global financial crisis and psychological health in a sample of Australian older adults: a longitudinal study. *Soc Sci Med* 2011;73:1105-12.
42. Catalano R. The health effects of economic insecurity. *Am J Public Health* 1991;81:1148-52.
43. Kawachi I. Social capital and community effects on population and individual health. *Ann NY Acad Sci* 1999;896:120-30.
44. Kawachi I, Kennedy BP, Lochner K et al. Social capital, income inequality and mortality. *Am J Public Health* 1997;87:1491-8.
45. Duberstein P, Conwell Y, Connor K et al. Poor social integration and suicide: fact or artifact? *Psychol Med* 2004;34:1331-7.
46. Durkheim E. *Le suicide. Étude de sociologie*. Paris: Les Presses universitaires de France, 1897.
47. Wahlbeck K, McDaid D. Actions to alleviate the mental health impact of the economic crisis. *World Psychiatry* 2012;11:139-45.
48. Moller-Leimkuhler A. The gender gap in suicide and premature death or: why are so men so vulnerable? *Eur Arch Psychiatry Clin Neurosci* 2003;253:1-8.
49. Conger RD, Elder GH, Lorenz FO et al. Linking economic hardship to marital quality and instability. *J Marriage Fam* 1990;52: 643-55.
50. Conger RD, Wallace LE, Sun Y et al. Economic pressure in African American families: a replication and extension of the family stress model. *Dev Psychol* 2002;38:179-93.
51. Vijayakumar L. Suicide prevention: the urgent need in developing countries. *World Psychiatry* 2004;3:158-9.
52. Vinokur AD, Price RH, Caplan RD. Hard times and hurtful partners: how financial strain affects depression and relationship satisfaction of unemployed persons and their spouses. *J Pers Soc Psychol* 1996;71:166-79.
53. Hraba J, Lorenz FO, Pechacova Z. Family stress during the Czech transformation. *J Marriage Fam* 2000;62:520-31.
54. Kinnunen U, Pulkkinen L. Linking economic stress to marital quality among Finnish marital couples: mediator effects. *J Fam Issues* 1998;19:705-24.
55. Robila M, Krishnakumar A. Effects of economic pressure on marital conflict in Romania. *J Fam Psychol* 2005;19:246-51.
56. Kwon HK, Rueter MA, Lee MS et al. Marital relationships following the Korean economic crisis: applying the family stress model. *J Marriage Fam* 2003;65:316-25.
57. Bebbington PE, Minot S, Cooper C et al. Suicidal ideation, self-harm and attempted suicide: results from the British psychiatric morbidity survey 2000. *Eur Psychiatry* 2010;25:427-31.
58. Mann JJ, Apter A, Bertolote J et al. Suicide prevention strategies: a systematic review. *JAMA* 2005;294:2064-74.
59. Evans E, Hawton K, Rodham K et al. The prevalence of suicidal phenomena in adolescents: a systematic review of population-based studies. *Suicide Life Threat Behav* 2005;35: 239-50.
60. Nock MK, Banaji MR. Prediction of suicide ideation and attempts among adolescents using a brief performance-based test. *J Consult Clin Psychol* 2007;75:707-15.

DOI 10.1002/wps.20016